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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,815	11/26/2003	Cheol Kyu Bok	30205/39509	9353

4743 7590 07/30/2004

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EXAMINER

WALKE, AMANDA C

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

S.C.

Office Action Summary

Application No.

10/722,815

Applicant(s)

BOK ET AL.

Examiner

Amanda C Walke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-21 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-15, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiya et al (6416930).

Wakiya et al disclose a composition for lithographic anti-reflection coating, and a resist laminate using the composition. The reference teaches that "The water-soluble film-forming monomer is not specifically limited and includes any of water-soluble film-forming monomers as far as they are soluble in water and have transparency to irradiated light. A preferred water-soluble film-forming monomer can form a uniform coating by a conventional coating means such as spin coating, does not form an altered or deteriorated layer between a photoresist film even when the resulting coating solution is applied on the photoresist film, and can form a coating which is sufficiently transparent to an active ray or radiation, has a small absorption coefficient and has a high transparency.

Such water-soluble film-forming monomers include, but are not limited to, vinyl alcohol, vinylpyrrolidone, vinyl acetate, and other vinyl monomers; hydroxypropylmethylcellulose phthalate, hydroxypropylmethylcellulose acetate phthalate, hydroxypropylmethylcellulose acetate succinate, hydroxypropylmethylcellulose hexahydrophthalate, hydroxypropylmethylcellulose, hydroxypropylcellulose, hydroxyethylcellulose, cellulose acetate

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hexahydrophthalate, carboxymethyl cellulose, ethyl cellulose, methyl cellulose, and other cellulosic monomers; N,N-dimethylacrylamide, N,N-dimethylaminopropylmethacrylamide, N,N-dimethylaminopropylacrylamide, N-methylacrylamide, diacetone acrylamide, N,N-dimethylaminoethyl methacrylate, N,N-diethylaminoethyl methacrylate, N,N-dimethylaminoethyl acrylate, acryloyl morpholine, acrylic acid, and other acrylic monomers. Among these, vinyl monomers are preferred, of which vinylpyrrolidone is advantageous. Each of these water-soluble film-forming monomers can be used alone or in combination.

Such compounds represented by the formula (I) include, for example, perfluoroheptanoic acid and perfluorooctanoic acid. The compounds represented by the formula (II) include, for example, perfluoropropylsulfonic acid, perfluorooctylsulfonic acid, and perfluorodecylsulfonic acid. Specifically, perfluorooctanoic acid is commercially available under the trade name of EF-201, and perfluorooctylsulfonic acid is available under the trade name of EF-101, both as products of Tohkem Products Corporation, Japan. These compounds can be advantageously used. Among them, perfluorooctylsulfonic acid is specifically preferred as it has a high inhibitory activity against interference, a high solubility in water and is easy to adjust the pH of the resulting composition. Further, when the safety of the human body should be considered, perfluorooctanoic acid is preferred. Furthermore, when using perfluorooctanoic acid, in order to adjust pH, acidic compounds such as organic sulfonic acid or the like may be added, if necessary. Such organic sulfonic acid may be exemplified by p-toluenesulfonic acid, dodecylbenzene sulfonic acid and the like. “

Given the teachings of the reference, it would have been obvious to one of ordinary skill in the art to prepare the material of Wakiya et al choosing to employ N,N –dimethylacrylamide

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or vinylpyrrolidone as the water-soluble polymer of the antireflective layer, with reasonable expectation of achieving that is compatible with photolith compositions.

3. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiya et al in view of Nishi et al (6,673,517).

Wakiya et al has been discussed above, however, the reference fails to teach the specific polymer claimed by the instant claims 16-19.

Nishi et al disclose a polymer comprising recurring units meeting the instant claim limitations. The reference teaches that the polymer results in excellent sensitivity, resolution, and etching resistance.

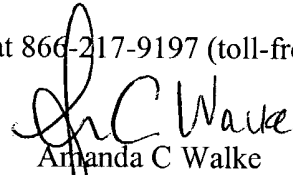
Given the teachings of the Nishi et al reference, it would have been obvious to one of ordinary skill in the art to prepare the material of Wakiya et al choosing to employ the layer of resist taught by Nishi et al to increase the sensitivity, resolution, and etch resistance, with with reasonable expectation of achieving that is compatible with photolith compositions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda C Walke whose telephone number is 571-272-1337. The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Amanda C Walke
Examiner
Art Unit 1752

ACW
July 25, 2004